

### **What is claimed is:**

**[Claim 1]** A multiband antenna comprising a lower conductive tube and first, second, and third upper conductive tubes, all of the conductive tubes spaced from each other and disposed on the same longitudinal axis,

a first transmission line extending within the lower conductive tube to a first feed point located between and connected to the lower conductive tube and the first upper conductive tube,

a second transmission line extending within the lower conductive tube and the first and second upper conductive tubes to a second feed point located between and connected to the second and third upper conductive tubes,

and an isolation circuit connected between the first and second upper conductive tubes, wherein the isolation circuit resonates only at a lower frequency band,

whereby the lower conductive tube and the first, second, and third upper conductive tubes form a dipole radiator centered on the first feed point that resonates in the lower frequency band for signals transmitted along the first transmission line, and the second and third upper conductive tubes form a dipole radiator centered on the second feed point that resonates in a higher frequency band for signals transmitted along the second transmission line.

**[Claim 2]** The multiband antenna of claim 1 wherein the first transmission line is coaxial and a balun is connected at the first feed point.

**[Claim 3]** The multiband antenna of claim 1 wherein the isolation circuit is an inductance – capacitance circuit.

**[Claim 4]** The multiband antenna of claim 1 wherein the isolation circuit comprises a capacitor connected in parallel with an inductor, and both are connected in series with another capacitor.

**[Claim 5]** The multiband antenna of claim 1 wherein the lower frequency band is 30–88 MHz and the higher frequency band is 225–450 MHz.

**[Claim 6]** A multiband antenna comprising a lower conductive tube and first, second, third and fourth upper conductive tubes, all of the conductive tubes spaced from each other and disposed on the same longitudinal axis,

a first transmission line extending within the lower conductive tube to a first feed point located between and connected to the lower conductive tube and the first upper conductive tube,

a second transmission line extending within the lower conductive tube and the first and second upper conductive tubes to a second feed point,

a third transmission line extending within the second upper conductive tube from the second feed point to a third feed point located between and connected to the first and second upper conductive tubes,

a fourth transmission line extending within the third upper conductive tube from the second feed point to a fourth feed point located between and connected to the third and fourth upper conductive tubes

and isolation circuits connected between the upper conductive tubes,

wherein the lower conductive tube and the upper conductive tubes form a center-fed low frequency dipole radiator, centered on the first feed point, that resonates in a lower frequency band for signals transmitted along the first transmission line, and wherein the first and second upper conductive tubes form a 1<sup>st</sup> high frequency dipole radiator centered on the third feed point, and the third and fourth upper conductive tubes form a 2<sup>nd</sup> high frequency dipole radiator centered on the fourth feed point, the 1<sup>st</sup> and 2<sup>nd</sup> high frequency dipole radiators resonating in a higher frequency band for signals transmitted along the second transmission line by way of the second feed point.